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Preface

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Abstract

This part of the volume contains the papers accepted for presentation, as well as the extended abstract of the invited lecture by Madhav Marathe (Los Alamos National Laboratory, USA), at the Workshop on Algorithmic Methods and Models for Optimization of RailwayS (ATMOS 2002) held in Málaga, Spain, on 13 July 2002, as a satellite event of ICALP 2002.

Railway optimization problems are extremely complex and their efficient solution is a rather difficult task. Problems and user requirements need to be transformed into formal mathematical models that have to be as accurate as possible. Advanced mathematical methods and sophisticated algorithms are required to efficiently tackle the derived optimization problems. Development of efficient algorithms need to be alternated with experimental studies to exhibit the practical merits of the algorithms and provide useful prototype implementations. Formal models and methods need to be developed to evaluate the whole design process from requirements and specifications up to software prototyping. Consequently, the efficient solution of railway optimization problems requires a coordinated interdisciplinary effort from researchers in mathematical and combinatorial optimization, formal methods, foundations of software engineering, algorithm design, theory of computation, and algorithm engineering.

The main aim of ATMOS 2002 just like the preceeding workshop ATMOS 2001 held as a satellite event of ICALP 2001, was to provide a forum for the exchange and dissemination of new ideas, techniques, and research in the field of railway optimization. In particular, the workshop is meant to bring together researchers from the above areas interested in all aspects of algorithmic methods and models for railway optimization, including those interested in formal software specification and implementation methods, and in formal domain and knowledge models of railway systems.

The program committee selected 5 papers in an electronic meeting conducted from April 26 to April 30. The criteria for selection were perceived originality, quality, and relevance to the subject of the workshop. Considerable effort was devoted for the evaluation of the submissions and to providing the authors with helpful feedback. Each submission was reviewed by at least four program committee members. However, submissions were not refereed in the thorough way that is customary for journal papers, and some of them represent reports of continuing research. It is expected that most of the papers in this volume will appear in finished form in scientific journals.

We would like to thank all those who submitted papers for consideration, as well as the Program Committee members for their invaluable contribution. We gratefully acknowledge the dedicated work of ATMOS and ICALP's Organizing Committees, and the support of the Human Potential Programme of EU under contract no. HPRN-CT-1999-00104 (project AMORE).

Konstanz, June 2002 Dorothea Wagner

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